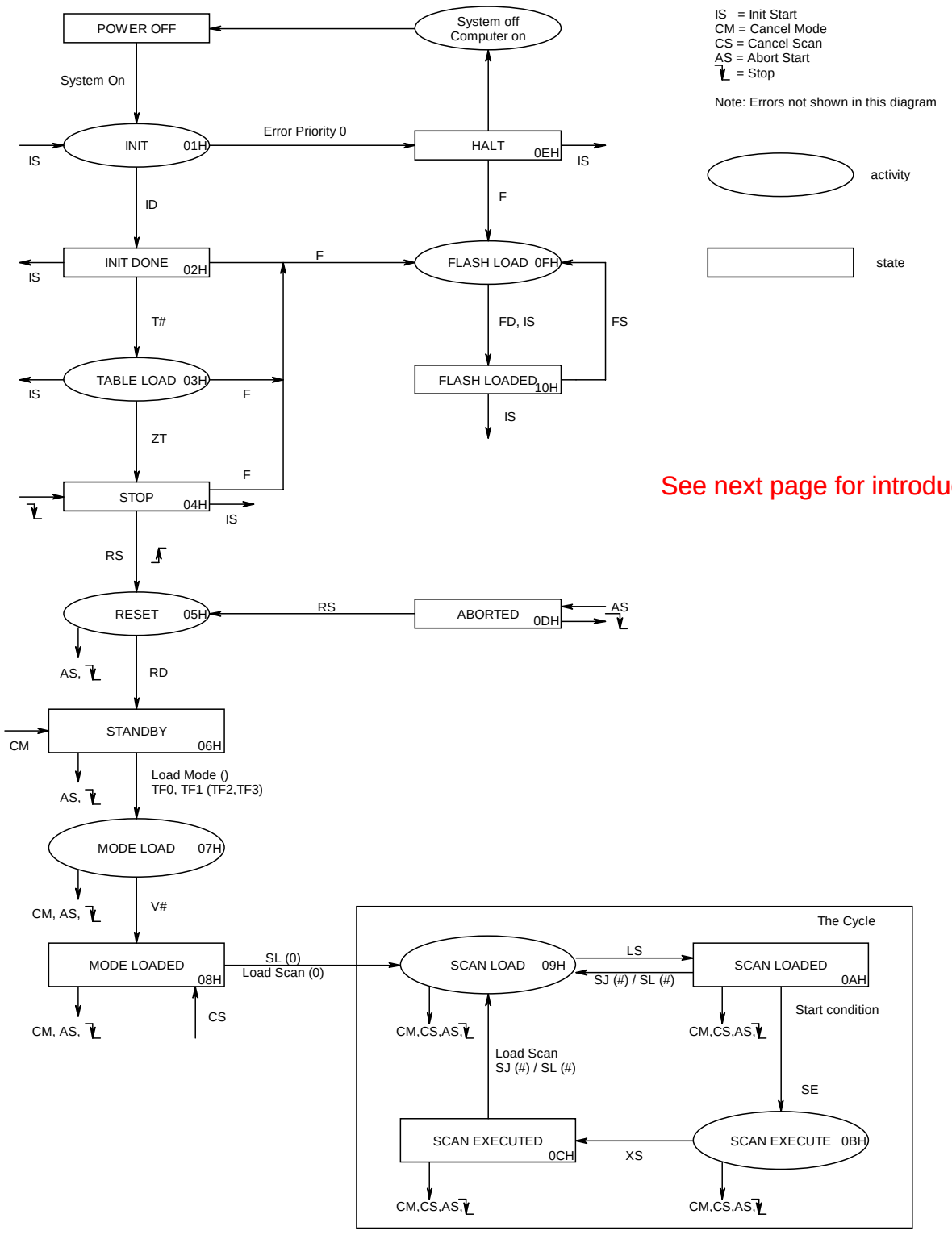

See next page for introduction

2 State Diagram and Programs

2.1 General

The next pages give an overview over the specified programs on the interfaces ICS-MAS/MCU and MAS/MCU-Controllers. Based on the state diagram all states and actions are described in graphics and words. In addition to the state diagram, some asychroneous commands are described like PATient POSitioning, KEY commands a.o.. The commands are described in detail in chapter 3.

All described papers are based on the system architecture with "distributed intelligence" in different controllers. Every controller contains one or more (**P10**) functional components (**P10**: e.g. MAS, ROT, GPC). Every functional component gets a command to do a specific function (or more). It answers "function ok" or "ERROR" if it’s not able to do the job.

The MAS/MCU coordinates all needed activities (depending on the loaded parameters) and sends the result to the ICS. The ICS cannot switch a single controller in an asynchronous state. A single function (e.g. Rotation on/off) is done via MODE LOAD and CANCEL.

The functional component DOM is optional. The information about DOM implementation is stored as parameter in the Flash-PROM of MAS/MCU. The configuration is done by T0B. If DOM is not implemented, all DOM related commands and signals in the following program specification have to be ignored.

The machine has some service switches on the controllers. If one or more switches are ’on’, it is impossible to load or execute a scan. If a service switch is ’on’ while a mode is loaded, the MAS/MCU cancels the mode if the switch is set to ’off’.

Every controller has a system timer on board which is synchronized with every power on, INIT, RESET or SCAN EXECUTE command. The time is used to get detailed information about errors in the system (who was first?) and is sent with every error.

The state diagram shows the synchronous states and activities of the machine. By switching on the machine (i.e. gantry and generator) all function controllers start the initialization (INIT). The ICS asks for the machine state and executes the TABLE LOAD, if INIT DONE is detected. In TABLE LOAD, the adjust and other parameter tables are loaded into the controllers. At the end of TABLE LOAD, all FW-versions are requested by the ICS to realize, that the SW and FW work together. The machine leaves the state STOP with a Reset command and executes a RESET. In STANDBY, all tested functions are ok and the user is free, to load a mode. This is done by the ICS with a *mode and cycle table (TF0, TF1, TF2, TF3)*. The MAS/MCU coordinates the correct load of all parameters and with a *start execute* command, the loaded parameters will be executed.